Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. **(Original)** A semiconductor device that performs active drive current programming, comprising: current load cells each having a current load and a current load driving circuit, which are arranged in a matrix; and a means for selecting a plurality of data lines one by one with respect to one current output from a current driver for supplying current to the respective data lines, and supplying the current output to the selected data line;

wherein the current load driving circuit in each of the current load cells includes:

a transistor whose source is connected to a first power supply while whose drain is connected to the current load directly or via a switch;

a capacitance connected between the gate of the transistor and the first power supply or another power supply; and

a switch or a plurality of series-connected switches connected between the gate of the transistor and a corresponding data line; and

wherein there are control lines for controlling the switch connected to the gate of the transistor included in each of the current load driving circuits at least as many as data lines selectable by one current output of the current driver in one line of the semiconductor device.

2. **(Original)** The semiconductor device claimed in claim 1, further comprising means for performing operations as follows during one horizontal period for selecting one line:

setting a voltage value corresponding to current from one output of the current driver in the gate of the transistor and one end of the capacitance in the current load cell by turning on one or more switches with a control signal transmitted through one of the plural control lines corresponding to the selected data line so that each current output of the current driver is electrically connected to the gate of the transistor in the current load cell during the

period while one of the plural data lines is selected;

turning off the one or more switches before or upon completion of the period while one of the plural data lines is selected to maintain the setting voltage; and

performing the above operations with respect to each of the plural data lines to complete current programming for the current load cells corresponding to one line.

3. **(Original)** A semiconductor device that performs active drive current programming, comprising: current load cells each having a current load and a current load driving circuit, which are arranged in a matrix; and a means for selecting a plurality of data lines one by one with respect to one current output from a current driver for supplying current to the respective data lines, and supplying the current output to the selected data line;

wherein the current load driving circuit in each of the current load cells includes:

a transistor whose source is connected to a first power supply while whose drain is connected to the current load directly or via a switch;

a capacitance connected between the gate of the transistor and the first power supply or another power supply; and

a plurality of switches connected in series between the gate of the transistor and a corresponding data line; and

wherein there are control lines for controlling the switch connected to the gate of the transistor included in each of the current load driving circuits at least as many as data lines selectable by one current output of the current driver in one line of the semiconductor device; and

there is a control line for controlling the switch whose one end is connected to the data line corresponding to the current load cell having the current load driving circuit in each line of the semiconductor device.

4. **(Original)** The semiconductor device claimed in claim 3, further comprising means for performing operations as follows during one horizontal period for selecting one line:

setting the respective switches whose one ends are connected to the data lines corresponding to all the current load cells for one line to the on state during one horizontal period with a control signal transmitted through the control line provided to each line;

setting a voltage value corresponding to current from one current output of the current driver in the gate of the transistor and one end of the capacitance in the current load cell by turning on one or more switches with a control signal transmitted through one of the plural control lines corresponding to the selected data line so that each current output of the current driver is electrically connected to the gate of the transistor in the current load cell during the period while one of the plural data lines is selected;

turning off the one or more switches before or upon completion of the period while one of the plural data lines is selected to maintain the setting voltage; and

performing the above operations with respect to each of the plural data lines to complete current programming for the current load cells corresponding to one line.

5. **(Original)** A semiconductor device that performs active drive current programming, comprising: current load cells each having a current load and a current load driving circuit, which are arranged in a matrix; and a means for selecting a plurality of data lines one by one with respect to one current output from a current driver for supplying current to the respective data lines, and supplying the current output to the selected data line;

wherein the current load driving circuit in each of the current load cells includes:

a means for outputting a voltage according to the current supplied from the current driver through the data line;

a means for maintaining the voltage;

a means for supplying current to the current load according to the voltage maintained; and

a means for controlling the implementation of the functions according to an input control signal; and

wherein there are control lines for transmitting the control signal at least as many as data lines selectable by one current output of the current driver in one line of the semiconductor device.

6. **(Original)** A semiconductor device that performs active drive current programming, comprising: current load cells each having a current load and a current load driving circuit, which are arranged in a matrix; and a means for selecting a plurality of data lines one by one with respect to one current output from a current driver for supplying current to the respective data lines, and supplying the current output to the selected data line;

wherein the current load driving circuit in each of the current load cells includes at least:

a means for outputting a voltage according to the current supplied from the current driver through the data line;

a means for maintaining the voltage;

a means for supplying current to the current load according to the voltage maintained;

a means for controlling whether or not to maintain the voltage according to a first control signal input into the current load cell; and

a means for controlling whether or not to establish a connection between the data line and the means for outputting the voltage according to a second control signal input into the current load cell; and

wherein there are control lines for transmitting the first control signal at least as many as data lines selectable by one current output of the current driver in one line of the semiconductor device; and

there is a control line for transmitting the second control signal in each line of the semiconductor device.

7. **(Currently Amended)** The semiconductor device claimed in ~~one of claims 1 to 6~~ claim 1, wherein the current driver and the semiconductor device are mounted on the same substrate.

8. **(Currently Amended)** The semiconductor device claimed in ~~one of claims 1 to 7~~ claim 1, wherein the current load is a light emitting element.

9. **(Currently Amended)** The semiconductor device claimed in ~~one of claims 1 to 7~~ claim 1, wherein the current load is an organic electro luminescence element.

10. **(Original)** A semiconductor device driving method for driving a semiconductor device that performs active drive current programming and comprises current load cells each having a current load and a current load driving circuit, which are arranged in a matrix, wherein:

one current output of a current driver for current-driving data lines is input in a selector, the selector selects the plural data lines connected respectively to the outputs of the selector one by one based on an output select signal input therein, and the current output of the current driver is supplied to the selected data line;

the current load driving circuit in each of the current load cells includes:

a transistor whose source is connected to a first power supply while whose drain is connected to the current load directly or via a switch for supplying current to the current load;

a capacitance connected between the gate of the transistor and the first power supply or another power supply; and

a switch or a plurality of series-connected switches connected between the gate of the transistor and a corresponding data line; and

there are control lines for controlling the switch in the current load driving circuit at least as many as data lines selectable by one current output of the current driver in one line of the semiconductor device;

the semiconductor device driving method comprising, in one horizontal period for selecting one line:

a first step for passing current corresponding to the current output supplied from the current driver to the selected data line through the transistor in the current load cell by turning on the switch whose one end is connected to the gate of the transistor in the current load cell with a control signal transmitted through one of the plural control lines corresponding to the selected data line during the period while the selector selects one of the plural data lines based on the output select signal; and

a second step for turning off the switch before or upon completion of the select period for the selected data line;

wherein the first and second steps are performed with respect to each of the plural data lines to complete current programming for the current load cells corresponding to one line.

11. **(Original)** A semiconductor device driving method for driving a semiconductor device that performs active drive current programming and comprises current load cells each having a current load and a current load driving circuit, which are arranged in a matrix, wherein:

one current output of a current driver for current-driving data lines is input in a selector, the selector selects the plural data lines connected respectively to the outputs of the

selector one by one based on an output select signal input therein, and the current output of the current driver is supplied to the selected data line,

the current load driving circuit in each of the current load cells includes:

a transistor whose source is connected to a first power supply while whose drain is connected to the current load directly or via a switch for memorizing and supplying current to the current load;

a capacitance connected between the gate of the transistor and the first power supply or another power supply; and

a plurality of switches connected in series between the gate of the transistor and a corresponding data line;

there are control lines for controlling the switch whose one end is connected to the gate of the transistor included in the current load driving circuit at least as many as data lines selectable by one output of the current driver in one line of the semiconductor device; and

there is a control line for controlling the switch whose one end is connected to the data line corresponding to the current load cell having the current load driving circuit in each line of the semiconductor device;

the semiconductor device driving method comprising, in one horizontal period for selecting one line:

a first step for setting the respective switches whose one ends are connected to the data lines corresponding to the current load cells for one line to the on state during one horizontal period with a control signal transmitted through the control line provided to each line;

a second step for passing current corresponding to the current output supplied from the current driver to the selected data line through the transistor in the current load cell by turning on the switch whose one end is connected to the gate of the transistor in the current load cell with a control signal transmitted through one of the plural control lines

corresponding to the selected data line during the period while the selector selects one of the plural data lines based on the output select signal; and

a third step for turning off the switch before or upon completion of the select period for the selected data line;

wherein the second and third steps are performed with respect to each of the plural data lines to complete current programming for the current load cells corresponding to one line.

12. **(Original)** A semiconductor device comprising:

a plurality of data lines running in one direction on a substrate;

a plurality of control lines running in a direction perpendicular to the data lines;

a plurality of current load cells each of which is set at the intersection of the respective data lines and control lines, and includes a current load and a current load driving circuit for driving the current load; and

a selector having an input terminal to which one current output from a driver for current-driving the data lines is input, and a plurality of output terminals connected to the plural data lines, respectively; wherein:

the selector selects one of the plural data lines according to an output select signal input therein, and supplies the current output from the driver to the selected data line;

the plural data lines connected to the selector are connected to their corresponding current load cells, respectively;

the current load driving circuit in each of the current load cells includes:

a first MOS transistor whose source is connected to a first power supply while whose drain is connected to one end of the current load directly or via a third switch, the other end of the current load being connected to a second power supply;

a capacitance whose one end is connected to the gate of the first MOS transistor while whose the other end is connected to the first power supply or another power supply; and

a first switch whose one end is connected to a contact node between the gate of the first MOS transistor and one end of the capacitance while whose the other end is connected to a corresponding data line directly or via a second switch;

there are at least control lines each transmitting a control signal corresponding to each of the current load cells connected respectively to the data lines connected to the selector; and

in each of the plural current load cells, the control signal corresponding to each of the current load cells is supplied to the control terminal of the first switch of the current load driving circuit, or the control terminals of both the first and second switches.

13. **(Original)** A semiconductor device comprising:

a plurality of data lines running in one direction on a substrate;

a plurality of control lines running in a direction perpendicular to the data lines;

a plurality of current load cells each of which is set at the intersection of the respective data lines and control lines, and includes a current load and a current load driving circuit for driving the current load; and

a selector having an input terminal to which one current output from a driver for current-driving the data lines is input, and a plurality of output terminals connected to the plural data lines, respectively; wherein:

the selector selects one of the plural data lines according to an output select signal input therein, and supplies the current output from the driver to the selected data line;

the plural data lines connected to the selector are connected to their corresponding current load cells, respectively;

the current load driving circuit in each of the current load cells includes:

a first MOS transistor whose source is connected to a first power supply while whose drain is connected to one end of the current load directly or via a third switch, the other end of the current load being connected to a second power supply;

a capacitance whose one end is connected to the gate of the first MOS transistor while whose the other end is connected to the first power supply or another power supply; and

a first switch whose one end is connected to a contact node between the gate of the first MOS transistor and one end of the capacitance while whose the other end is connected to a corresponding data line via a second switch;

there are at least control lines each transmitting a control signal corresponding to the first switch of the current load driving circuit in each of the current load cells connected respectively to the data lines connected to the selector;

there is a control line for transmitting a common control signal corresponding to the second switch of the current load driving circuit in each of the current load cells;

the control signal corresponding to each of the current load cells is supplied to the control terminal of the first switch of the current load driving circuit in the current load cell; and

the common control signal is supplied to the control terminal of the second switch of the current load driving circuit in the current load cell.

14. **(Currently Amended)** The semiconductor device claimed in ~~claim 12 or 13~~ claim 12, further comprising a second MOS transistor whose source is connected to the first power supply and whose gate and drain are connected to each other;

wherein the first switch is connected between the gate of the second MOS transistor and the contact node connecting the gate of the first MOS transistor with one end of the capacitance; and

the second switch is placed between the drain of the second MOS transistor and a corresponding data line.

15. **(Currently Amended)** The semiconductor device claimed in ~~one of claims 12 to 14~~ claim 12, further comprising a fourth switch between one end of the current load and the second power supply.

16. **(Currently Amended)** The semiconductor device claimed in ~~one of claims 12 to 15~~ claim 12, wherein the first MOS transistor is a TFT.

17. **(Original)** The semiconductor device claimed in claim 14, wherein the second MOS transistor is a TFT.

18. **(Currently Amended)** The semiconductor device claimed in ~~one of claims 12 to 17~~ claim 12, wherein the current load is a light emitting element.

19. **(Currently Amended)** The semiconductor device claimed in ~~one of claims 12 to 18~~ claim 12, wherein the current driver and the semiconductor device are mounted on the same substrate.

20. **(Currently Amended)** The semiconductor device claimed in ~~one of claims 12 to 19~~ claim 12, wherein the current load is a light emitting element.

21. **(Currently Amended)** The semiconductor device claimed in ~~one of claims 12 to 19~~ claim 12, wherein the current load is an organic electro luminescence element.

22. **(Original)** A semiconductor device driving method for driving a semiconductor device comprising:

a plurality of data lines running in one direction on a substrate;

a plurality of control lines running in a direction perpendicular to the data lines;

a plurality of current load cells each of which is set at the intersection of the respective data lines and control lines, and includes a current load and a current load driving

circuit for driving the current load; and

a selector having an input terminal to which one current output from a driver for current-driving the data lines is input, and a plurality of output terminals connected to the plural data lines, respectively; wherein:

the selector selects one of the plural data lines according to an output select signal input therein, and supplies the current output from the driver to the selected data line;

the plural data lines connected to the selector are connected to their corresponding current load cells, respectively;

the current load driving circuit in each of the current load cells includes:

a first MOS transistor whose source is connected to a first power supply while whose drain is connected to one end of the current load, the other end of the current load being connected to a second power supply;

a capacitance whose one end is connected to the gate of the first MOS transistor while whose the other end is connected to the first power supply or another power supply; and

a first switch whose one end is connected to a contact node between the gate of the first MOS transistor and one end of the capacitance while whose the other end is connected to a corresponding data line directly or via a second switch;

there are control lines each transmitting a control signal corresponding to each of the current load cells connected respectively to the data lines connected to the selector; and

in each of the plural current load cells, the control terminal of the first switch of the current load driving circuit or the control terminals of both the first and second switches are provided with the control line corresponding to each of the current load cells;

the semiconductor device driving method, wherein one cycle is divided into a number of driving periods corresponding to the plural current load cells connected respectively to the plural data lines connected to the driver via the selector, comprising the

steps of:

(a) selecting one corresponding data line from the plural data lines by the selector based on the output select signal during each driving period corresponding to each of the plural current load cells;

(b) passing current corresponding to the current output supplied from the driver to the data line through the first MOS transistor in the current load cell by turning on the first switch or the first and second switches in the current load cell with a control signal transmitted through one of the control lines for the current load cell corresponding to the data line selected by the selector; and

(c) turning off the first switch or the first and second switches in the current load cell with a control signal transmitted through the control line for the current load cell corresponding to the data line selected at step (a) before or at the time the selector proceeds to select the next data line based on the output select signal;

wherein the operating steps (a) and (b) are performed with respect to each of the plural data lines connected to the driver via the selector to complete current programming for the current load cells corresponding to one cycle.

23. **(Original)** A semiconductor device driving method for driving a semiconductor device comprising:

a plurality of data lines running in one direction on a substrate;

a plurality of control lines running in a direction perpendicular to the data lines;

a plurality of current load cells each of which is set at the intersection of the respective data lines and control lines, and includes a current load and a current load driving circuit for driving the current load; and

a selector having an input terminal to which one current output from a driver for current-driving the data lines is input, and a plurality of output terminals connected to the plural data lines, respectively; wherein:

the selector selects one of the plural data lines according to an output select signal input therein, and supplies the current output from the driver to the selected data line;

the plural data lines connected to the selector are connected to their corresponding current load cells, respectively;

the current load driving circuit in each of the current load cells includes:

a first MOS transistor whose source is connected to a first power supply while whose drain is connected to one end of the current load, the other end of the current load being connected to a second power supply;

a capacitance whose one end is connected to the gate of the first MOS transistor while whose the other end is connected to the first power supply or another power supply; and

a first switch whose one end is connected to a contact node between the gate of the first MOS transistor and one end of the capacitance while whose the other end is connected to a corresponding data line via a second switch;

there are control lines each transmitting a control signal corresponding to the first switch of the current load driving circuit in each of the current load cells connected respectively to the data lines connected to the selector;

there is a common control line for transmitting a common control signal corresponding to the second switch of the current load driving circuit in each of the current load cells;

the control signal being individual to each of the current load cells is supplied to the control terminal of the first switch of the current load driving circuit in the current load cell; and

the common control signal is supplied to the control terminal of the second switch of the current load driving circuit in the current load cell;

the semiconductor device driving method, wherein one cycle is divided into a

number of driving periods corresponding to the plural current load cells connected respectively to the plural data lines connected to the driver via the selector, and the second switch in the current load cell is on during one cycle according to the common control signal, comprising the steps of:

(a) selecting one corresponding data line from the plural data lines by the selector based on the output select signal during each driving period corresponding to each of the plural current load cells;

(b) passing current corresponding to the current output supplied from the driver to the data line through the first MOS transistor in the current load cell by turning on the first switch in the current load cell with a control signal transmitted through one of the control lines for the current load cell corresponding to the data line selected by the selector; and

(c) turning off the first switch with a control signal transmitted through the control line for the current load cell corresponding to the data line selected at step (a) before or at the time the selector proceeds to select the next data line based on the output select signal;

wherein the operating steps (a) and (b) are performed with respect to each of the plural data lines connected to the driver via the selector to complete current programming for the current load cells corresponding to one cycle.

24. **(Currently Amended)** The semiconductor device driving method claimed in ~~claim 22 or 23~~ claim 22 for driving the semiconductor device further comprising a second MOS transistor whose source is connected to the first power supply and whose gate and drain are connected to each other;

wherein the first switch is connected between the gate of the second MOS transistor and the contact node connecting the gate of the first MOS transistor with one end of the capacitance; and

the second switch is placed between the drain of the second MOS transistor and a corresponding data line.

25. **(Original)** A semiconductor device driving method for driving a semiconductor device comprising:

a plurality of data lines running in one direction on a substrate;

a plurality of control lines running in a direction perpendicular to the data lines;

a plurality of current load cells each of which is set at the intersection of the respective data lines and control lines, and includes a current load and a current load driving circuit for driving the current load; and

a selector having an input terminal to which one current output from a driver for current-driving the data lines is input, and a plurality of output terminals connected to the plural data lines, respectively; wherein:

the selector selects one of the plural data lines according to an output select signal input therein, and supplies the current output from the driver to the selected data line;

the plural data lines connected to the selector are connected to their corresponding current load cells, respectively;

the current load driving circuit in each of the current load cells includes:

a first MOS transistor whose source is connected to a first power supply while whose drain is connected to one end of the current load via a switch (referred to as "third switch"), the other end of the current load being connected to a second power supply;

a capacitance whose one end is connected to the gate of the first MOS transistor while whose the other end is connected to the first power supply or another power supply; and

a first switch whose one end is connected to a contact node between the gate of the first MOS transistor and one end of the capacitance while whose the other end is connected to a corresponding data line directly or via a second switch;

there are control lines each transmitting a control signal corresponding to each of

the current load cells connected respectively to the data lines connected to the selector;

in each of the plural current load cells, the control terminal of the first switch of the current load driving circuit or the control terminals of both the first and second switches are supplied with the control signal through the control line corresponding to each of the current load cells;

a fourth switch is placed between a contact node connecting one end of the current load with the third switch and the second power supply; and

there are a common control line connected to the control terminal of the third switch and a common control line connected to the control terminal of the fourth switch for the current load driving circuit in each of the current load cells connected respectively to the data lines connected to the selector;

the semiconductor device driving method, wherein one cycle is divided into a number of driving periods corresponding to the plural current load cells connected respectively to the plural data lines connected to the driver via the selector, comprising the steps of:

(a) selecting one corresponding data line from the plural data lines by the selector based on the output select signal during each driving period corresponding to each of the plural current load cells;

(b) turning on the first switch or the first and second switches in the current load cell with one of control signals for the current load cell corresponding to the data line selected by the selector, and setting the third switch to the off state with a control signal transmitted through the common control line so as to set the terminal voltage of the capacitance connected to the gate of the first MOS transistor to a voltage corresponding to the current output supplied from the driver to the data line;

(c) turning off the first switch or the first and second switches in the current load cell with a control signal for the current load cell corresponding to the data line selected at step (a) before or at the time the selector proceeds to select the next data line based on the

output select signal; and

(d) after the operating steps (a) and (b) are performed with respect to each of the plural data lines connected to the driver via the selector to set a current for the first MOS transistor of the respective current load cells corresponding to one cycle, turning on the third switch subsequently to the previous cycle so that the drain current of the first MOS transistor in the current load cell is supplied to the current load cell.

26. **(Original)** A semiconductor device driving method for driving a semiconductor device comprising:

a plurality of data lines running in one direction on a substrate;

a plurality of control lines running in a direction perpendicular to the data lines;

a plurality of current load cells each of which is set at the intersection of the respective data lines and control lines, and includes a current load and a current load driving circuit for driving the current load; and

a selector having an input terminal to which one current output from a driver for current-driving the data lines is input, and a plurality of output terminals connected to the plural data lines, respectively; wherein:

the selector selects one of the plural data lines according to an output select signal input therein, and supplies the current output from the driver to the selected data line;

the plural data lines connected to the selector are connected to their corresponding current load cells, respectively;

the current load driving circuit in each of the current load cells includes:

a first MOS transistor whose source is connected to a first power supply while whose drain is connected to one end of the current load via a switch (referred to as "third switch"), the other end of the current load being connected to a second power supply;

a capacitance whose one end is connected to the gate of the first MOS transistor while whose the other end is connected to the first power supply or another power supply; and

a first switch whose one end is connected to a contact node between the gate of the first MOS transistor and one end of the capacitance while whose the other end is connected to a corresponding data line via a second switch;

there are control lines each transmitting a control signal corresponding to the first switch of the current load driving circuit in each of the current load cells connected respectively to the data lines connected to the selector;

there is a common control line corresponding to the second switch of the current load driving circuit in each of the current load cells;

the control terminal of the first switch of the current load driving circuit in the current load cell is supplied with the control signal through the control line corresponding to each of the current load cells;

the control terminal of the second switch of the current load driving circuit in the current load cell is supplied with a control signal through the common control line;

a fourth switch is placed between a contact node connecting one end of the current load with the third switch and the second power supply; and

there are a common control line connected to the control terminal of the third switch and a common control line connected to the control terminal of the fourth switch for the current load driving circuit in each of the current load cells connected respectively to the data lines connected to the selector;

the semiconductor device driving method, wherein one cycle is divided into a number of driving periods corresponding to the plural current load cells connected respectively to the plural data lines connected to the driver via the selector, and the second switch in the current load cell is on while the third switch is off during one cycle according to the control signal transmitted through the common control line, comprising the steps of:

(a) selecting one corresponding data line from the plural data lines by the selector based on the output select signal during each driving period corresponding to each of the plural current load cells;

(b) turning on the first switch in the current load cell with one of control signals for the current load cell corresponding to the data line selected by the selector so as to set the terminal voltage of the capacitance connected to the gate of the first MOS transistor to a voltage corresponding to the current output supplied from the driver to the data line;

(c) turning off the first switch with a control signal for the current load cell corresponding to the data line selected at step (a) before or at the time the selector proceeds to select the next data line based on the output select signal; and

(d) after the operating steps (a) and (b) are performed with respect to each of the plural data lines connected to the driver via the selector to set a current for the first MOS transistor of the respective current load cells corresponding to one cycle, turning on the third switch subsequently to the previous cycle so that the drain current of the first MOS transistor in the current load cell is supplied to the current load cell.

27. **(Currently Amended)** The semiconductor device driving method claimed in ~~claim 25 or 26~~ claim 25, wherein, at operating step (d), the period while the fourth switch is on is equal to or included in the period while the third switch is off.

28. **(Currently Amended)** The semiconductor device driving method claimed in ~~one of claims 22 to 27~~ claim 22, wherein the current load is formed of a light emitting element, and one cycle is one horizontal period.

29. **(Original)** A semiconductor device comprising:

a plurality of data lines running in one direction;

a plurality of control lines running in a direction perpendicular to the data lines; and

a matrix of current load cells each of which is set at the intersection of the respective data lines and control lines;

wherein each of the current load cells includes:

a current load; and

a current load driving circuit for driving the current load, having:

a transistor connected in series with the current load between first and second power supplies;

a capacitance connected between the control terminal of the transistor and the first power supply; and

at least one switch connected between the control terminal of the transistor and a corresponding data line; and

wherein one current output of a current driver is connected to the plural data lines via a selector, and the plural data lines connected to one current output of the current driver via the selector and at least one switch of each of the current load cells corresponding to the respective data lines are drive-controlled in a time division manner during one horizontal period.